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IN THE DRAWINGS

Please replace original FIG. 11 with corrected FIG. 11, the replacement sheet for which is to be found in the attachments to this Amendment.

In FIG. 11, please substitute “FROM 1027” in place of “FROM 1033.” Also, please substitute “TO 1030” in place of “TO 1035.”

Please add new sheets containing FIGS. 6C and 7C. FIGS. 6C and 7C are submitted pursuant to 37 C.F.R. 1.121(d) and add no new matter.

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REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed October 5, 2005. Through this response, claims 3, 17, 20, 22, 26, 28, 31, 33, 34, 36, 38, and 39 have been amended; claim 63 has been added; and claims 16, 18, 27, 29, 35, and 37 have been cancelled without prejudice, waiver, or disclaimer. Reconsideration and allowance of the application and pending claims are respectfully requested.

I. Allowable Subject Matter

The Examiner is thanked for the thorough examination of the present application and the indication that claims 20-21, 31-32, and 39-40 would be allowable if amended to overcome the rejections under 35 U.S.C. § 112; that claims 5-15, and 41 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims; and that claims 1-2, and 42-62 are allowable over the prior art of record.

In that it is believed that every rejection has been overcome, it is respectfully submitted that each of the claims that remains in the case is presently in condition for allowance.

II. Drawings Objection

The drawings have been objected to under 37 C.F.R. 1.83(a) for not showing every feature of the invention specified in the claims. Specifically, regarding claims 1 and 17, the drawings are objected to for not showing "determining a noise floor." Applicant respectfully submits that step 1011 of the flowchart of FIG. 10A shows an embodiment of the disclosure containing this feature.

Regarding claim 42, the Office Action states that the drawings do not show "a bin SNR calculator, a comparator, a bin designator, a cluster modulator, a cluster separator, a cluster

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frequency equalizer, and a linear summing circuit.” Applicant has submitted herewith new drawing sheet FIG. 7C, which shows a linear summing circuit 781, which is supported by its recitation in the claims as well as corresponding discussion in the specification. FIG. 7C adds no new matter.

Further, permutations of FIGS. 6A, 6C, 7A, and 7C and the elements depicted therein illustrate a source processor and a sink processor, which can both be elements of an exemplary system according to the disclosure. Specifically, as a non-limiting example, a bin SNR calculator 706, comparator 707, designator 708 (bin designator), cluster modulator 640, cluster separator 760, cluster frequency equalizer 780, and linear summing circuit 781 are shown.

Regarding claim 56, the Office Action objects to the drawings and states that they do not show “a SNR calculator, a comparator, a bin designator, and a logic circuit.” Accordingly, Applicants have submitted herewith a new drawing sheet FIG. 6C, which is supported by the claims, including, for example, claim 56. FIG. 6C adds no new matter and shows the above mentioned elements of the claimed invention.

Regarding claim 57, the Office Action objects to the drawings and states that they do not show “a cluster separator.” Applicants respectfully submit that FIG. 7B depicts an exploded view of a cluster separator in accordance with an embodiment of the disclosure.

Regarding claim 58, the Office Action objects to the drawings and states that they do not show “a cluster frequency equalizer.” Applicants respectfully submit that, as a non-limiting example, cluster FEQ 780 depicts a cluster frequency equalizer in accordance with an embodiment of the disclosure.

The Office Action also objects to the drawings, specifically FIG. 2, because, stating that the drawing indicates it is prior art, while the specification does not. The amended specification submitted herewith indicates that FIG. 2 is prior art without adding new matter.

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FIG. 11 has been amended to correct typographical errors found after review. A clean copy and a marked-up copy of FIG. 11 that indicates all changes in red ink have been included with this Response. No new matter has been added.

In view of the above-noted remarks and amendments to the drawings, Applicants respectfully submit that the drawings are acceptable and respectfully request that the objection be withdrawn.

III. Specification Objections

The specification has been objected to for containing various informalities. Specifically, the Office Action identifies that “shown in FIG. 2” on page 3 of the specification is redundant. Also, the Examiner suggests replacing the term “cluster demodulator” on page 4 with terminology consistent with the specification. The Examiner suggests replacing the language “showing a non-limiting example showing the determination of the cluster pattern” on page 5 of the specification to “showing a non-limiting example of the step of the determination of the cluster pattern.”

In response to the objection, Applicants have amended the specification in conformance with 37 C.F.R. 1.121(b)(1), and respectfully submit that the specification is acceptable with regard to the above mentioned objections. Also, Applicants have amended the specification to note the addition of FIGS. 6C and 7C, which add no new matter. The text corresponding to the additions of these drawings was previously supported by the contents of the specification and previously submitted claims. Although these amendments effect various changes to the specification, it is respectfully asserted that no new matter has been added. In view of these amendments, Applicants respectfully submit that the specification is not objectionable, and therefore respectfully request that the objection be withdrawn.

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IV. Claim Rejections - 35 U.S.C. § 112, Second Paragraph

A. Statement of the Rejection

Claims 20-25, 31-33, and 39-40 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. In particular, the Examiner states that with regard to claims 20, 31, and 39, it is unclear whether “a predefined threshold SNR” is the same as the predefined threshold SNR in claim 18. The Office Action also states that there is insufficient antecedent basis for the limitation “the step of demodulating” in claim 22 and “the means of demodulating” in claim 33.

B. Discussion of the Rejections

In response to the rejection, Applicants have amended claims 20, 22, 31, 33, and 39. In view of those amendments, it is respectfully asserted that claims 20-25, 31-33, and 39-40 define the invention in the manner required by 35 U.S.C. § 112. Accordingly, Applicants respectfully request that the rejections to these claims be withdrawn.

V. Claim Rejections - 35 U.S.C. § 102

Claims 3, 4, 16, 18-19, 26-30, 34-35, and 37-38 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by *Cimini et al.* (“*Cimini*,” U.S. Pat. No. 5,914,933). The Examiner is again thanked for the thorough examination of the present application and the indication that certain claims of the instant application mentioned above contain allowable subject matter.

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Among the subject matter that the Examiner admitted to be allowable is "clustering the defined insufficient-capacity data bins into bin-clusters having sufficient SNR for data transmission" of independent claim 1. The Examiner also admitted "a cluster modulator [that] clusters the insufficient-capacity bins into bin-clusters for data transmission" of claim 42 is among allowable subject matter. Finally, the Examiner admitted that "a modulation device [that] clusters individual data bins having a low signal-to-noise ratio (SNR) to produce a bin-cluster having a higher SNR than the individual data bins" is among allowable subject matter.

Applicants have amended the previously rejected independent claims to incorporate subject matter admitted by the Examiner to be allowable to place the remaining claims in immediate condition for allowance. Specifically, independent claims 3, 26, and 34 have been amended to include allowable subject matter admitted by the Examiner.

In view of the foregoing amendments, all independent claims now define over the cited art of record, and are in condition for allowance. As all independent claims define over the cited art of record, all presently pending dependent claims define over the cited art for at least the same reasons.

VI. Claim Rejections - 35 U.S.C. § 103(a)

Dependent claims 17, 28, and 36 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Cimini*. As mentioned above, all independent claims are believed to contain allowable subject matter. Accordingly, dependent claims 17, 28, and 36 are allowable for at least the reason that these claims depend from allowable independent claims. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

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VII. Canceled Claims

As identified above, claims 16, 18, 27, 29, 35, and 37 have been canceled from the application through this Response without prejudice, waiver, or disclaimer. Applicants reserve the right to present these canceled claims, or variants thereof, in continuing applications to be filed subsequently.

VIII. New Claim


As identified above, claim 63 has been added into the application through this response. Applicants respectfully submit that this new claim describes an invention novel and nonobvious in view of the prior art of record and, therefore, respectfully request that these claims be held to be allowable. Claim 63 adds no new matter.

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CONCLUSION

Applicants respectfully submit that all pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



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ANNOTATED SHEET

